SUCCESS STORIES

The goal of the Million Solar Roofs Initiative is to install one million solar energy systems on U.S. buildings by 2010. The Initiative focuses on two types of solar energy technology — photovoltaics that produce electricity from sunlight, and solar thermal systems that produce heat for domestic hot water, space heating or heating swimming pools. The U.S. Department of Energy leads this effort in partnership with the building industry, other federal agencies, utilities, the solar energy industry, financial institutions, state and local governments, and non-governmental organizations. These partnerships concentrate on removing market barriers and developing and strengthening demand for solar energy products and applications. As progress is made toward the goal of one million solar roofs, greenhouse gases and other harmful emissions will be reduced, high tech jobs will be created, and the U.S. solar energy industry will retain its competitive edge.

Project: Terry Parker High School Installation

Type: Grid Connected PV

Location: Jacksonville, Florida

Background: In November 1999, the first of 22 school-based solar energy projects in Jacksonville, Florida was unveiled at Terry Parker High School. Each of these 22 PV systems will be four kilowatts for a total installed capacity of 88 kilowatts, and will generate enough electricity to offset lighting and air conditioning loads for roughly one classroom. The photovoltaic school installations are part of the Solar Education Project, a $900,000 program managed by the Jacksonville Electric Authority (JEA), a municipal utility which provides solar education for students while allowing JEA to test the energy source for future use in homes and businesses. The Solar Education Project, due to be completed in 2000, is part of JEA's new "GreenWorks" program, which was created with the assistance of Sierra Club's Northeast Florida Group and the American Lung Association. Two additional four kilowatt photovoltaic systems will also be installed on JEA facilities in downtown Jacksonville and at their water treatment facility to heighten public exposure to solar energy. This project is only the first of many investments in renewable energy for JEA.

As part of its environmental commitment, JEA has established a long-term goal of generating 4 percent of its electricity, by 2007, from alternative power sources and 7.5 percent by 2015. Through a buydown program, established with funds provided by the Florida Energy Office, JEA will receive a $100,000 grant from the Florida Solar Energy Center (FSEC) to offset some of the costs of installing the 22 school systems. FSEC will also provide JEA with technical support as necessary for each installation.

In addition to the installation of PV at Duval County Schools, JEA is undertaking a variety of other environmentally friendly projects under the GreenWorks program. Some of these include the addition of electric vehicles to its fleet, reduction in the amount of nitrogen discharges into the St. Johns River by JEA wastewater plants, and the donation or planting of over a half-million trees between 1991 and 2001. JEA also supports the U.S. Department of Energy's Global Climate Challenge Program, including the establishment of a program for reporting carbon dioxide reductions and sequestration through the DOE Voluntary Greenhouse Gas Reporting Program.

System Description: Forty-eight BP solar panels, for a total rating of 4 kilowatts DC, were installed on a covered walkway near the school's bus drop-off lot. The panels are situated to face west instead of south due to local school staff preference. The panels generate approximately 1 percent of the school's total energy demand.

Financing information: Primary funding for the installations comes from JEA. Additional funds are provided by the Florida Solar Energy Center through the Florida Energy Office.

Climate: The City of Jacksonville is at approximately 30° latitude and receives about 2550 normal cooling degree days and 1435 normal heating degree days per year. The normal relative humidity in Jacksonville is around 76 percent on the average day. It generally receives about 50 inches of rain each year and the average year-round temperature is 69° Fahrenheit. Jacksonville exhibits clear sunny skies about 63 percent of the year.

Installed Cost: The total installed cost is $46,000. This includes approximately $25,000 for equipment and $21,000 for installation.

Optimum Maintenance Costs: This site will be remotely monitored via modem. Additionally, biannual site visits are anticipated. The costs are currently not available.

Direct Savings: This system will save Terry Parker High School roughly $320 per year at the rate of 6.77 cents per kWh.

Environmental Benefits: This system will avoid approximately 35 pounds of NOx, 71 pounds of SO_2 and 49,000 pounds of CO_2 emissions per year over its estimated 25 year life span based on average regional EPA emission factors.

Contact: Larry Wagner, JEA (904) 665-6292 or Jennifer Szaro, FSEC (321) 638-1427.

DOE Regional Offices

Atlanta Regional Office
Dwight Bailey, 404/347-0234
730 Peachtree, NE, Suite 876
Atlanta, GA 30308
fax: 404/347-3098
Southeast Region: FL, GA, SC, NC, AL, MS, KY, TN, AR, USVI, PR

Boston Regional Office
Richard Michaud, 617/565-9713
One Congress Street
Room 1101
Boston, MA 02114-2021
fax: 617/656-9723
Northeast Region: CT, ME, MA, NH, NY, VT, RI

Chicago Regional Office
William Hui, 312/886-8586
One South Wacker Drive
Chicago, IL 60606
fax: 312/886-8561
Region: IL, IN, IA, MI, MN, MO, OH, WI

Denver Regional Office
Jamey Evans, 303/275-4813
1617 Cole Blvd.
Golden, CO 80401-2266
fax: 303/275-4830
Region: CO, KS, LA, MT, NE, NM, ND, OK, SD, TX, UT, WY

Philadelphia Regional Office
Susan Guard, 215/656-6965
1880 John F. Kennedy Blvd.
Suite 501
Philadelphia, PA 19103-7483
fax: 215/656-6981
Region: DE, DC, MD, NJ, PA, VA, WV

Seattle Regional Office
Curtis Framel, 206/553-7841
800 Fifth Ave., Suite 3950
Seattle, Washington 98104-3122
fax: 206/553-2200
Northwest Region: AK, WA, ID, OR, CA, NV, AZ, HI, Pacific Territories

Hawaii only:
Eileen Yoshinaka, 808/541-2564
300 Ala Moana Blvd.
Honolulu, HI 96813
fax: 808/541-2562

For more information:
By phone:
Efficiency and Renewable Energy Clearinghouse (EREC)
1-800-DOE-EREC (363-3732)

On the Internet:
Million Solar Roofs Website
www.MillionSolarRoofs.org